"EFFECT OF YOGA PACKAGE ON RHEUMATOID ARTHRITIS"

A SYNOPSIS

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SIGNIFICANCE OF STUDY-

In present world the disease rheumatoid arthritis can be controlled by daily use oral painkiller tablets (analgesic) drugs, steroid, non-steroidal anti-inflammatory drugs anti-rheumatic drug and immunosuppressant drug etc. **(Harris E.D., 1990)** But since these drug have to taken indefinitely, without assurance of cure and wither possible adverse reaction, so modern treatment of rheumatoid arthritis is still a source of worries and unhappiness.

Lawrence, R.C. et al. (1998) - estimated 42.7 millions Americans 15% of the population had some form of arthritis in 1995 and due to the increasing average age of the population this total is expected to rise to 59.4 millions (18.2%) by year 2020.

MMWR (2001) consistent with this, it was recently estimated that, since 1990, the prevalence of arthritis has increased by 750,000 cases per year. Yelin E. (1998) - find that the estimated total economic cost to united state of arthritis is over 65 million dollars ($) annually.

Robert B. Duthie (1973) says about economic survey rheumatic arthritis in his book-The economic importance is reflected by the thirty million working days lost each year in Great Britain due to the rheumatic diseases with a consequent loss to the national economy of over one hundred and fifty million ponds per year. Studies suggest that approximately 10% of the population of Great Britain and United State of America are disabled to some degree by chronic arthritis. Degenerative joint disease (7%) and rheumatoid arthritis (3%) account for most of the total. **Duthie B. Robert (1973)** the population survey conducted by US department of health in 1959 estimated that about 11 million population over 15 years of ago. Lowrence (1967) has shown, in population study in North West England that 2.8% of adult males and 6.3% of adult females have and inflammatory poly-arthritis. In a similar survey it was found that 50% of adult males and 52% of adult females had osteoarthritis affecting one or more joints. This incidence for osteoarthritis rose to 98% for age group of 65-74 years.

The National Health Insurance Statistics for 1955 showed that rheumatic disease were responsible for the loss of 27 million days work in the insures population in England and Wales. This was a greater annual loss than from any other group of diseases. **Eswar Krishnan (2003)** had shown his study that average disability levels in patients with rheumatoid

arthritis have declined by 4% since 1977 at rate of about 2% a year by newer treatment strategies. These strategies have improved short term disability outcomes but long term trends in disability had not been studied now. **Allaries (2003)** found his study that the patients with rheumatic disease job loss is also associated with higher level of depression and pain.

in the above facts show that arthritis (rheumatoid and other types) have great challenge to modern medical science and affect world wide health with economy. Today there is great necessity to develop a holistic health management system to cope this world wide problem.

CONVENTIONAL TREATMENT AND ITS LIMITATION

Dr.Swami, Karmananda (2003) says that- Modern medicine has not yet fully come to terms with overall dimensions of arthritis. It concentrates on the relief of arthritic pain but fail to treat and correct its underlying causes. **Dr. Nagendra H.R. & Dr. Nagaratna R. (2003)** also support this statement -The modern medicine work in rheumatoid arthritis has three goals - 1. Symptom relief - 2.Supress inflammation and 3.Prevent joint destruction.

A wide spectrum of drugs is prescribed, beginning with aspirin derivatives, which act both as analgesics (pain killers) and anti-inflammatory agents. Aspirin is effective although tolerance develops and increasing doses are required. Prolonged use of aspirin in large doses can have damage effect on the stomach, liver and kidneys, so the patients are graduated to the next stage in drug therapy. More powerful anti-inflammatory agents, such as iodomethacin and Phenylbutazone, are prescribed until a tolerance once again develop or the harmful side effects again preclude continuation.

The next step is the corticosteroids which are analogs of the hormone secreted by the Adrenal gland (cortex). These drugs have serious side effects. The patient own adrenal gland degenerate and body become fat. Diabetes and high B.P. can occur Ca is leached from bones, rendering them more susceptible to fracture. The final stage is the surgical removal of the afflicted joint and its replacement with and artificial one. These joints prove unite effective often lasting four years. Then a further replacement becomes necessary; however the patient may now be at an age when the trauma of a major surgical procedure can barely be tolerated.

INTEGRATED APPROACH OF YOGA THERAPY FOR R.A.

Dr. Nagendra, H.R. (2003) says that the integrated approach of yoga therapy provides techniques to address the problems of all aspects of the stressed fast life style of the individual.

Dr. Swami, karmananda (2003) yogic management of the arthritic process is all embracing and effectively complements standard medical measures. However, yoga will never advocate drug management of symptoms in isolation, while neglecting to correct the underlying deficiencies of diet exercise, life style and so on.

REVIEW OF LITERATURE

The history of Arthritis (rheumatoid arthritis) can be traced back to the time of Ayurvedic literature which described the disease in detail.

Madhav Nidanam (2002, 31st edition)- In this literature -the main causative factor of Rheumatoid arthritis (Aamvat) is due to deposition of deformities and immature Aamras and vata which cause stiffness inflammation and pain in long joint i.e. ankle joint, sacrum joint, knee joint and thigh joint

Aamras is formed in body due to wrong habit of diet and heavy exercise just after meal.

Haslock et al. (1994) - illustrates how yoga therapy can be adapted to a wide range of conditions and disabilities. 20 people attending a clinic for rheumatoid arthritis were randomly allocated into two groups of 10 each. One of these groups was taught yoga, while other was not. Both continued with their normal medication. Those in the yoga group enjoy the practice and showed significant improvement in grip strength after 12 weeks. No adverse effects were observed.

Manoj Das and Shirley Talles (2001) - this study aimed that assessing the effects of a set of yoga practice on normal adult, children and patients with rheumatoid arthritis. And equal number of normal adults, children and patients with rheumatoid arthritis who did not practice yoga were studies under each category, forming respecting controlled groups. yoga and control group subjects were assessed at base line and after varying intervals, as follows, adult after 13 days, children after 10 days and patients after 15 days, based on the duration of the yoga program, which they attended, which was already fixed. Handgrip strength both hands increased in normal adults and children, and rheumatoid arthritis patients,

following yoga but not in corresponding control group showing no retest effect. Adult female and patient showed a greater percentage improvement than corresponding adult male. Hence yoga practice improves handgrip strength a normal person and in patients with rheumatoid arthritis, through the magnitude of improvement varies with factors such as gender and age.

Garfinkel, M.S. et al. (1994) -yoga and relaxation techniques have traditionally been used by non medical practitioners to help alleviate musculoskeletal symptoms. The objective of this study was to collect controlled observation of the effect of yoga on the hands of the patients with osteoarthritis. Patients with OA of the hands were randomly assigned to receive either the yoga program or no therapy. Yoga techniques were supervised by one instructor for 8 weeks. Variables assessed were pain, strength, motion, joint circumference, tenderness and hand function. Result showed that the yoga treated group improved significantly than the control group in pain during activity, tenderness and finger range of motion. This yoga derived program was effective in providing relief in hand OA.

Dhume, R.R. et al. (1991) -Have found that the yogic practices improve muscles balance, control significantly than other techniques or medication.

Narayan, R. et al. (1990) -This work was aimed to quantify the degree of relaxation of muscle under the effect of yoga with the help of EMG integrator. The data collect from 8 individuals (four males and four females) on the degree of muscle relaxation at the end of meditation revealed a significantly decrease muscle activity amounting to 58% of the basal level of both sexes.

Dr. Moorthy, A.M. (1983) - He observed his research study the yogic exercises are effective in improving muscular fitness of normal healthy person and patients.

Gore, M.M. (1987) -He concluded his research study-the short term yogic training camp arising of Asana, Prnayama and Kriyas having primary objective of physical culture, improve neuromuscular efficiency in normal and stressful situation.

Gharote, M.L. et al. (1976) - He concluded his research work that the introduction of yogic exercise improves the muscular activity and its strength. Which is essential for physical fitness?

Mrs. Deshpande, R.R.and Dr. Bhole, M.V. (1982) -They conclude after their research work-the yogic practice that is Asana, Pranayama, and Kriyas change the blood pressure. Yogic treatment influences TLC and DLC of patients in a favorable manner.

Kabat-Zinn, J. (1982) - The practice of mindfulness meditation was used in a 10 week stress reduction and relaxation program to chronic pain patients who have not improve with traditional medical care. The dominant pain categories were low back, neck and shoulder, and headache. At 10 weeks 65% patients showed a reduction of greater than or equal to 33% in the mean total pain rating index and 50% showed a reduction of greater than or equal to 50%. Similar decreases were recorded on other pain indices. He conclude that this form of meditation can be used as the basis of an effective behavioral program itself regulation for chronic pain patients.

Controlled trials indicate that yoga therapy can help in the management or cure many chronic conditions, including Asthma (**Nagaratna and Nagendra 1985**), Diabetes (**Monro et al. 1992**), Heart conditions (**Ornish et al. 1990**), Hypertension (**Patel and Marmot 1988**) and rheumatoid arthritis (**Haslock et al. 1994**). Surveys, case studies and anecdotal reports suggest that yoga therapy can also help other chronic conditions, including back pain, menstrual conditions, migraine, multiple sclerosis and OA.

In the following above literature review I select this topic that is Effect of selected yogic practices (Asana, Satkarama, Pranayama and Meditation) on autoimmune diseases with special reference to Rheumatoid Arthritis. The purpose of this study is to assess al diagnostic aspects which changes due to practice of selected yogic program.

Statement of Problem:-

"Effect of Yoga Package on Rheumatoid Arthritis"

Objectives: - The proposed research work has aimed to study the effect of **Yoga Package** (YP) on –

1. Pain intensity,
2. Number of inflamed joints,
3. Time of early morning stiffness on joint movement,
4. Pulse rate(PR),
5. Systolic blood pressure(SBP),
6. Diastolic blood pressure(DBP),
7. Lymphocyte count(LC),
8. C- reactive protein (CRP) level, and
9. Serum Uric Acid (UA) level **of RA patients.**

DISCRIPTION OF VARIABLES-

Independent Variables-

1. Satkarma-

Selvarasu, K.V. (2003) satkrama (kriyas) or cleansing process bring down the body activity to a minimum level that facilitates the body working to go smoothly. Kriyas are vital in influencing the immanent power of body in developing specific immunity, capacity to resists and eradicate the offending factors and to help the body to recope itself.

Asana- Gore, M.M. (2003) the asanas has variety of effects i.e.

- Relaxation, stretching and balancing the muscles.
- mobilization of joint
- improvement of postures
- action of pressure points
- improving the breath
- calming the nervous system

Promotion of homeostasis in cardiovascular, digestive, endocrine and other systems. Asana relax muscle through holding them gently stretched position, this feedback to the mind, thus also relaxing mental tension. Mental relaxation techniques promote relaxation of all levels through body awareness, visualization etc.

Pranayama-

Saraswati, Swami Satyananda (2002) pranayama harmonizes and links the mind and body. Breathing is controlled by both conscious and unconscious neutral pathways, providing a bridge between mind and body. This is a key bridge because berating constantly effects the muscles, joints and internal organs. Breathing patterns closely reflect mental stress, and are nearly always disturbed in illness. Improving the breath patterns promotes health can help in management of many chronic ailments. More advanced pranayama practices bring further

benefits for a wide range of chronic conditions. It also improves the strength of immune system of our body.

Meditation-

Saraswati, Swami Niranjanananand (1997) Says about meditation-simple form of meditation are also a vital components of yoga therapy. These emphasize awareness, positive emotions, and a sense of unity with the rest of life. Many conditions affecting the musculoskeletal system have physiological components, and can therefore be helped therapy at physiological, mental and spiritual levels.

Dependent Variable-

Rheumatoid arthritis

Bakhru, H.K. (2002) Rheumatoid arthritis is an autoimmune disease that causes chronic inflammation of the joints. Rheumatoid arthritis can also cause inflammation of the tissues around the joints as well as other organs in the body. Autoimmune diseases are illness which occurs when the body tissues are mistakenly attacked by its own immune system. Patients with these diseases have antibodies in their blood which target their own body tissues where can be associated with inflammation. Because it can affect multiple other organs of the body it is referred to as a systemic illness. **Lasisz, B. et al. (1990)**

Branenark, P.I. and Goldie (1969) the joint inflammation of RA causes swelling, pain, stiffness and redness in the joints. The inflammation of RA can also occur in tissue around the joints such as tendon ligament and muscles, chronic inflammation leads to a destruction of cartilage, bone and ligaments causing deformity of the joint.

Cause - actual cause is unknown. Even through infectious agent such as virus, bacteria, and fungi have long been suspected, none has been proven as the cause. Some scientists believe that the tendency to develop RA may be genetically inherited. Environmental factors also seem to play some role in the cause of RA. Recently scientists have reported that smoking increases the risk of developing RA.

Symptoms-Robert, B.Duthie (1973) when disease is active, symptoms can include fatigue, lack of appetite, low grade fever, muscles and joint aches, stiffness and inflammation.

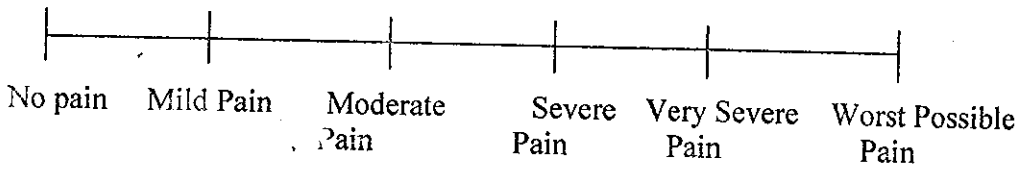
Hypotheses: - During the course of this study, the following **null hypotheses** with **non-directional alternative hypotheses** will be set:

1. There will be insignificant association between post pain intensity and Yoga Package.
2. There will be insignificant difference in post mean number of inflamed joints between **Experimental group (EG)** and **Control group (CG).**
3. There will be insignificant difference in post mean time stiffness between EG and CG.
4. There will be insignificant difference in post mean pulse rate between EG and CG.
5. There will be insignificant difference in post mean systolic blood pressure between EG and CG.
6. There will be insignificant difference in post mean diastolic blood pressure between EG and CG
7. There will be insignificant difference in post mean lymphocyte count between EG and CG.
8. There will be insignificant difference in post mean CRP level between EG and CG.
9. There will be insignificant difference in post mean serum uric acid level between EG and CG.

Tools and Test Description: - The researcher has used following tools and tests to measure pre and post measure of parameters that are sufficient to assess severity of RA.

1. **Pain Scale** –

   Simple Descriptive Pain Intensity Scale (SDPIS) is a tool used a person's to rate the intensity of pain. The SDPIS for pain is a straight line with one end meaning no pain and other end meaning the worst possible pain as below:



A patient marks a point on the line that matches the amount of pain he or she feels. It may be helpful to choose the right does of pain medicine **(Randall, C. et al., 2004)**

2. Early morning stiffness (In minutes):
3. Number of inflamed joints

} both are assessed by direct visual observation and direct information given by the patients during clinical assessment.

4. Pulse Rate (Ps/ minute):- Measured by palpating in **radial artery.**
5. Blood pressure (mmHg):- Measured by **Mercurial Sphygmomanometer.**

6. Lymphocyte Count (%):- **By monocular and binocular microscope**

7. CRP (mg/L)
8. Uric Acid (mg/dl)

Both are tested by **RA 50 chemistry analyzer**

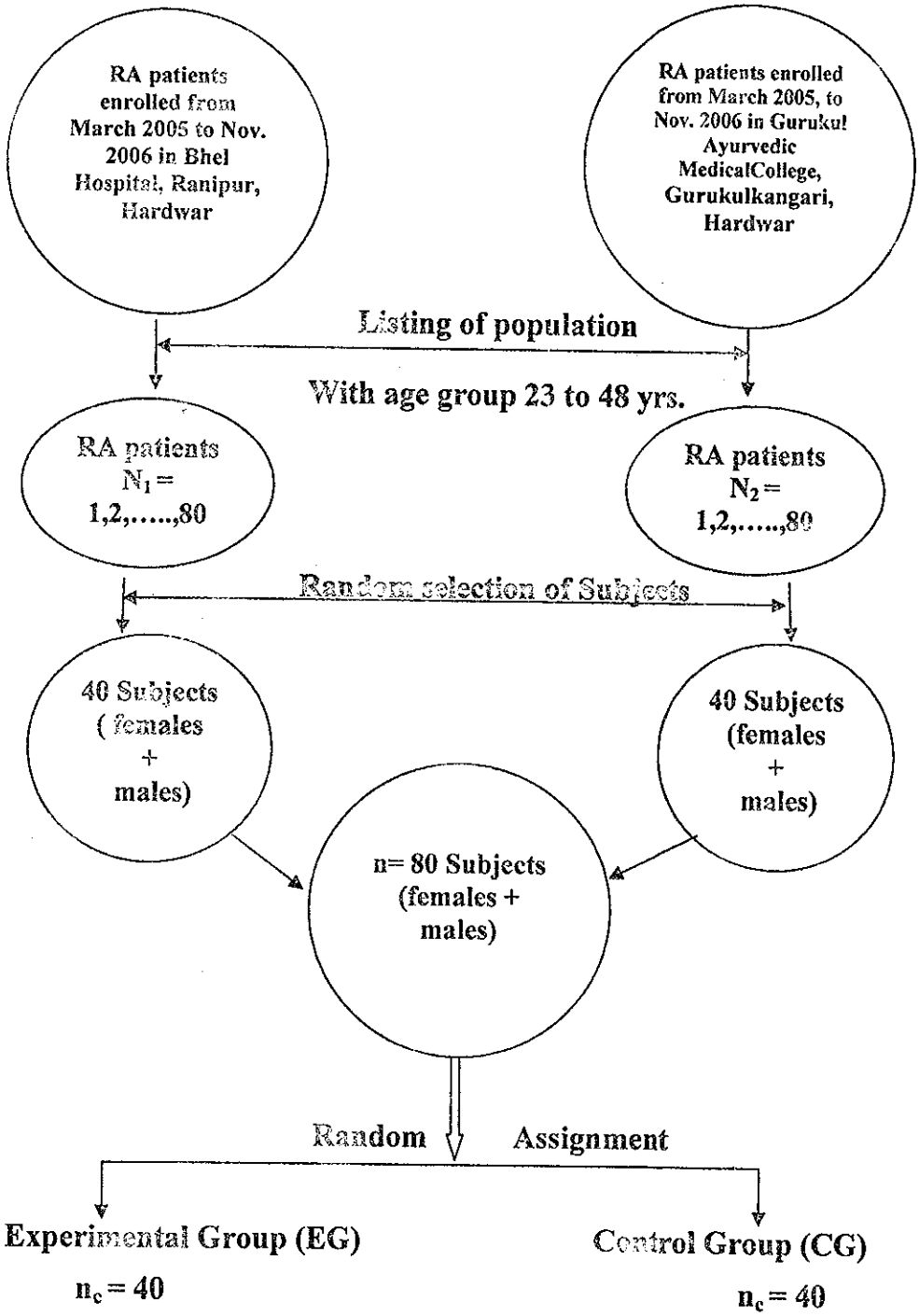
9. **CRP:-** Analysis of CRP was made by **quantitative immunoturbimetric test** . (CRP turbilatex made by Spiureact, S.A. Catra. Snta Coloma, 7E-17176 SANT ESTATEVE DE VAS (GI) SPAIN)

Uric acid: - Measured by **Vitro Quantitative Enzymatic Method**. This is made by Bayer Diagnostic, India Ltd.

Method:

Sampling: - Simple Random Sampling (SRS)

Sampling Structure:-


RA patients enrolled from March 2005 to Nov. 2006 in Bhel Hospital, Ranipur, Hardwar
RA patients enrolled from March 2005, to Nov. 2006 in Gurukul Ayurvedic MedicalCollege, Gurukulkangari, Hardwar
Listing of population
With age group 23 to 48 yrs.
RA patients N_1 = 1,2,.....,80
RA patients N_2 = 1,2,.....,80
Random selection of Subjects
40 Subjects (females + males)
40 Subjects (females + males)
n= 80 Subjects (females + males)
Random Assignment
Experimental Group (EG)
$n_e = 40$
Control Group (CG)
$n_c = 40$

Research Design: - During this research study the **two randomized group design** will be set:

R	O_1	×	O_2
R	O_3		O_4

O_1 = Pre-observation

O_2 = Post observation

O_3 = Pre observation of CG

O_4 = Post observation of CG

X = Yoga Package (YP)

R = Randomization (Random selection + Random assignment)

Statistical Analysis-

For hypotheses testing, appropriate statistical tests will be applied.

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